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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,425	02/28/2002	Hiroshi Kitaguchi	381NU/50957	7437

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EXAMINER

SUNG, CHRISTINE

ART UNIT	PAPER NUMBER
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2878

DATE MAILED: 04/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/084,425	Applicant(s) KITAGUCHI ET AL.	
	Examiner Christine Sung	Art Unit 2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

1. The amendment file on 3/5/2004 has been entered.

Drawings

2. Figure 9 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claim 2 is objected to because of the following informalities: Claim 2, line 4 contains a typographical error; "maim" should read --main--. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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6. Claims 1-4 and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drukier (US Patent 5,866,907).

Regarding claim 1, Drukier discloses a radioactive sample measurement apparatus (Figure 1) comprising:

A radiation detection system (element 20) having a main detector (elements 22, 26) and a sub-detector (elements 22 and 26) that are arranged at positions diametrically opposed to each other (see figure 1) with respect to a sampling chamber (element 36), and a shield (element 55, column 8, lines 31-35) for shielding background radiation surrounding the detectors; and a coincidence counter circuit (element 56) in a measuring circuit (elements 56, 58, 59, 60) in which a particular radiation emitted from the radioactive sample is measure with a coincidence count processor using signals from both detectors. Drukier further discloses an embodiment that discloses that the main detector is a plate shaped semiconductor (figure 11, element 82) or flat round detectors with the specified thickness to diameter/length of diagonal ratio of 1 or less (see column 22, lines 48-64) and further discloses a sub detector (Figure 11, element 73) that is a scintillation detector. Although Drukier does not specifically disclose the use of an anticoincidence counter circuit, he does disclose that anticoincidence techniques may be used to reject anticoincident events that do not represent detection events from the data (Column 22, line 65- Column 23, line 11). Within a given event data set, removing the anticoincident events or extracting the coincident events represent an analogous processing technique. The end result of either technique yields data that represents actual scintillation events and effectively removes erroneous data received from background radiation. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have included the anticoincident

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processor, as it would require less time to process the raw data and further increases the spectral sensitivity of a detector.

Further, regarding claim 2, Drukier discloses that a well-shaped detector may be used (see table 2, column 23). Drukier discloses the claimed invention except for the second sub-detector. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the second sub-detector, since it has been held that mere duplication of the essential working parts of device involves only routine skill in the art. It would have been obvious to add a second sub detector to increase the sensitivity of the detector system. *St Regis Paper Co. v. Bemis Co.*, 549 F2d 833, 193 USPQ 8(CA 71977).

Regarding claims 3 and 6, in the abovementioned paragraphs Drukier discloses a similar ratio of thickness to length of the diameter or diagonal as being less than one. Drukier discloses the claimed invention except for the specified thickness range of the detector. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have included the claimed range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F 2d 454. 105 USPQ 233, 235 (CCPA 1955).

Regarding claims 4 and 7, in the abovementioned paragraphs Drukier discloses a radiation shield for shielding the background radiation from the detector elements and further Drukier discloses several types of shields, but does not specify the material or the range in which the material does not emit characteristic x-ray radiation. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used a material that would not emit characteristic x-ray radiation during the claimed range of energy, since it has

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been held to be within the general skill of a working in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960).

7. Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. (US Patent 4,347,214) in view of Drukier (US Patent 5,866,907).

Regarding claims 5 and 8, Sato et al. discloses a failed fuel detection apparatus for a nuclear reactor (see abstract), wherein radiation intensity from xenon (Column 3, lines 11-35) is detected in an off gas system but does not disclose the specified detector. However, Drukier discloses the elements of the abovementioned paragraphs and further includes the possibility that the measurement values are collected as time series data (Column 6, lines 23-32). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the Drukier detection apparatus with the failed fuel detection system as disclosed by Sato et al. to acquire greater accuracy of event data, since Sato does not limit the types of detectors that can be used and since Drukier does not limit the environment where his detector can be used.

Response to Arguments

8. Applicant's arguments filed 3/5/2004 have been fully considered but they are not persuasive.

Regarding the drawings, a drawing correction was not submitted, but the amendment stated that an amended drawing was submitted.

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Regarding applicant's argument that there is no disclosure of a semiconductor detector but only a scintillator is not persuasive. The cited reference (Drukier) does disclose a semiconductor detector with a scintillator detector, in Figure 11 and in column 44, lines 63-68.

Further, regarding applicant's argument that the motivation for the rejection of claim 1 is nothing more than hindsight is not persuasive. Anticoincident counters are well known in the art of radiation detectors, particularly in embodiments that include several detectors and are often used to increase the spectral sensitivity of a detector. (see cited reference JP-08015441).

Further regarding applicant's argument that Drukier does not suggest a measuring circuit for removing background noise using an anti coincidence counter circuit is not persuasive. As stated above, anticoincident counters are well known in the art of radiation detectors, and further include removing background noises to improve the spectral sensitivity (see abstract of JP 08015441).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. JP 08015441- this reference discloses a conventional anticoincident counter.

b. US Patent 5,574,758- this reference discloses measuring radioactivity in a nuclear reactor including an anticoincidence counting circuit.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Sung whose telephone number is 571-272-2448. The examiner can normally be reached on Monday- Thursday 7-5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christine Sung
Examiner
Art Unit 2878

CS


DAVID PORTA
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